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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
ALBERTALLI, BRIAN LOUIS	
ART UNIT	**PAPER NUMBER**
2655	

DATE MAILED: 09/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/054,246	LATIMER, KENNETH J.	
	Examiner	Art Unit	
	Brian L. Albertalli	2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 August 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2,4,5 and 8-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2,4,5 and 8-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Applicant's arguments, see pages 2-4, filed August 26, 2005, with respect to the rejection(s) of claim(s) 2, 4, 8-13, and 17-29 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Skemer et al. (U.S. Patent 6,570,849).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 2, 8-13, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Skemer et al. (U.S. Patent 6,570,849), hereinafter referred to as "Skemer", in view of Downes (*Internetworking Technologies Handbook*).

In regard to claim 2, Skemer discloses a system (Fig. 2) capable of transmitting voice and data signals over a wide-area network circuit (Fig. 1, access network 4); said WAN circuit having a line rate (end-to-end bandwidth in bits/second, column 9, lines 48-50); said system comprising:

a physical layer interface (Fig. 2, IP Data interface 42, column 11, lines 7-10) for connecting a Subscriber Premise device (Fig. 1, LAN based IP devices 7, column 8, lines 28-22) between a LAN (Fig. 1, LAN 6) and said WAN circuit for providing packets representing data signals to said WAN circuit (Fig. 2, IP packets are forwarded through packet network interface 21 to access network 4);

a telephone line interface (Fig. 2, 40) for connecting a standard telephone line equipment to said WAN circuit (telephone devices, column 8, lines 23-27); said telephone line interface containing a CODEC that digitizes analog signals for transmission of voice packets to said WAN circuit (column 8, lines 62-67);

a fragmenting device (Fig. 2, IP fragmentation 41 and TQVoP process 10) containing a software algorithm rendered effective by the presence of packets from said telephone line interface (the maximum transmission unit (MTU) calculation that is used to determine the size of data packet fragments is determined based on the current active calls, column 12, lines 35-37) for fragmenting data signals into labeled packets interspersed with said voice packets as the data signals pass there through (IP fragmentation 41 fragments IP packets according to the MTU calculation, column 11, lines 13-16; the fragments must necessarily be labeled for reconstruction; the voice based data packets and LAN based data packets are interleaved, see Fig. 3 and column 8, lines 45-47); said labeled packets having a fragmented packet size determined by said line rate (MTU defines the largest packet size for IP packets from the LAN and is based on the end to end bandwidth, column 9, formulas 1 and 2, and lines 24-37); and

a packet flow device configured to mix said labeled packets and said voice packets into a stream provided to said WAN circuit (egress traffic management interleaves the voice data packets and LAN based data packets provided to access network 4, column 8, lines 45-47).

Skemer do not specifically disclose that the LAN network (Fig. 1, 6) is an Ethernet network.

Downes discloses Ethernet is the most common LAN technology in use (page 7-1, Background). Downes further discloses Ethernet technology provides an easily understandable, low-cost, flexible, and manufacturer independent means for communicating between devices (page 7-1)

It would have been obvious to one of ordinary skill in the art at the time of invention to implement the LAN disclosed in Downes as an Ethernet LAN to provide Ethernet data signals, because Ethernet technology provides an easily understandable, low-cost, flexible, and manufacturer independent means for communicating between devices, as taught by Downes (page 7-1).

In regard to claim 8, Skemer discloses a system (Fig. 2) for multiplexing data packets and voice signals over a wide-area network (WAN) circuit (Fig. 1, access network 4) connecting a subscriber premise (Fig. 1, 5) and a provider premise (Fig. 1, 3), the WAN circuit having a line rate (end-to-end bandwidth in bits/second, column 9, lines 48-50), the system comprising:

a data interface configured to communicate data packets to and from a LAN (Fig. 2, IP Data interface 42 receives data packets from LAN 6, column 11, lines 7-10);

a telephone line interface coupled to telephone equipment and configured to produce voice packets (Fig. 2, telephony interface 40, column 10, lines 60-65);

a fragmentation device configured to receive data packets from the data interface and, responsive to the presence of the voice packets at the telephone line interface, to fragment the data packets into labeled data packets (the maximum transmission unit (MTU) calculation that is used to determine the size of data packet fragments is determined based on the current active calls, column 12, lines 35-37; IP fragmentation 41 fragments IP packets according to the MTU calculation, column 11, lines 13-16; the fragments must necessarily be labeled for reconstruction), wherein the size of the labeled data packets is based on the WAN line rate (MTU defines the largest packet size for IP packets from the LAN and is based on the end to end bandwidth, column 9, formulas 1 and 2, and lines 24-37);

a multiplexer configured to multiplex the labeled data packets with the voice packets into a stream (egress traffic management interleaves the voice data packets and LAN based data packets provided to access network 4, column 8, lines 45-47); and

a WAN interface configured to communicate the multiplexed stream of voice packets and labeled data packets over the WAN circuit (packet network interface 21, column 11, lines 44-46).

Skemer do not specifically disclose that the LAN network (Fig. 1, 6) is an Ethernet network.

Downes discloses Ethernet is the most common LAN technology in use (page 7-1, Background). Downes further discloses Ethernet technology provides an easily understandable, low-cost, flexible, and manufacturer independent means for communicating between devices (page 7-1)

It would have been obvious to one of ordinary skill in the art at the time of invention to implement the LAN disclosed in Downes as an Ethernet LAN to provide Ethernet data signals, because Ethernet technology provides an easily understandable, low-cost, flexible, and manufacturer independent means for communicating between devices, as taught by Downes (page 7-1).

In regard to claim 9, Skemer discloses the multiplexer is further configured to multiplex the labeled data packets with the voice packets into a stream according to a priority scheme whereby one voice packet alternates with one labeled data packet (see Fig. 3, each voice packet 50 included in real time window 51, which alternates with the MTU for data fragments, column 12, lines 10-34).

In regard to claim 10, Skemer discloses the size is further based on a sampling rate at which the voice packets are produced (Equation 3, the real time window is determined from the voice block size, which would necessarily increase or decrease according to the sampling rate of the voice packets).

In regard to claim 11, Skemer discloses the data packets are variable in size (the MTU calculation is dynamic, column 12, lines 35-42).

In regard to claim 12 Skemer discloses the voice packets are fixed in size (each real time packet is a constant 212 bytes, column 12, lines 10-16).

In regard to claim 13, Skemer discloses a method for multiplexing Ethernet frames and voice signals over a WAN circuit connecting a subscriber premise and a provider premise, the method comprising:

receiving data frames (column 11, lines 7-10);

receiving voice packets (column 11, lines 1-6);

responsive to the presence of voice packets, fragmenting each of the data frames into a plurality of data packets having a size calculated to ensure the transmission time of the data packet over the WAN circuit is no longer than the transmission time of a voice packet (the MTU for data is determined so that the voice and data packets are both sent within a given launch window, illustrated in Fig. 3 as 10 msec; data from the LAN is then fragmented to fit the MTU, column 9, lines 24-37);

labeling each of the data packets with an identifier indicating where the fragmented data packets fits within the data frame (the fragments must necessarily be labeled for reconstruction); and

multiplexing the labeled data packets and the voice packets over the WAN circuit (the voice and data packets are interleaved, column 11, lines 44-46).

Skemer do not specifically disclose that the LAN network (Fig. 1, 6) is an Ethernet network.

Downes discloses Ethernet is the most common LAN technology in use (page 7-1, Background). Downes further discloses Ethernet technology provides an easily understandable, low-cost, flexible, and manufacturer independent means for communicating between devices (page 7-1)

It would have been obvious to one of ordinary skill in the art at the time of invention to implement the LAN disclosed in Downes as an Ethernet LAN to provide Ethernet data signals, because Ethernet technology provides an easily understandable, low-cost, flexible, and manufacturer independent means for communicating between devices, as taught by Downes (page 7-1).

In regard to claim 17, Skemer discloses the size is based on the WAN line rate (end to end bandwidth, column 9, lines 48-55 and equation 2).

In regard to claim 18, Skemer discloses the size is further based on a sampling rate at which the voice packets are produced (Equation 3, the real time window is determined from the voice block size, which would necessarily increase or decrease according to the sampling rate of the voice packets).

In regard to claim 19, Skemer discloses the multiplexer is further configured to multiplex the labeled data packets with the voice packets into a stream according to a

priority scheme whereby one voice packet alternates with one labeled data packet (see Fig. 3, each voice packet 50 included in real time window 51, which alternates with the MTU for data fragments, column 12, lines 10-34).

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Skemer, in view of Downes, as applied to claim 2, above and further in view of Doucette et al. (U.S. Patent 6,108,346), hereinafter referred to as "Doucette".

In regard to claim 4, Skemer discloses that the size of the fragmented packet is chosen to ensure that packets from said telephone line can have an arrival rate that is constant (column 11, lines 61-65), and further discloses that voice packets are based on full bandwidth (16 bit) samples (column 12, lines 13-16).

Skemer does not explicitly disclose the voice packets have an arrival rate of 64 Kbps.

Doucette discloses that 64 Kbps is the bandwidth of a standard full duplex voice call (column 9, lines 34-35).

It would have been obvious to one of ordinary skill in the art at the time of invention to further modify the combination of Skemer and Downes to choose a fragmented packet size that ensured the packets from the telephone line could have an arrival rate of 64 Kbps, so that a standard full duplex telephone signal could be provided without degradation of the voice signal.

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Skemer, in view of Downes, as applied to claim 2, above, and further in view of the Applicant's admitted prior art.

Regarding the specific line rates and packet sizes given in claim 5, the Applicant's admitted prior art discloses calculating the amount of space left in a data stream for user data. Given high priority data that must be sent through the data stream at a constant rate, and a certain line rate, there is only so much "room" left for other low priority data. Accordingly, as the rate of the data stream increases, the amount of "room" for low priority data increases as well, which means the size of each low priority data packet increases as well.

Therefore, in view of the teachings of Skemer and Downes and further in view the Applicant's admitted prior art, it would have been obvious to one of ordinary skill in the art at the time of invention to store any number of line rates and corresponding data packet sizes in a table, so that the system would be able to quickly respond to any changes in the line speed and adjust the data packet size accordingly.

6. Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Skemer, in view of Downes, as applied to claim 13 above, and further in view of Kimura et al. (U.S. Patent 5,778,189).

Neither Skemer nor Downes disclose specific identifiers to indicate what portions of an Ethernet frame are contained within a packet.

Kimura et al. disclose that when an Ethernet frame (Fig. 7, FR3) must be divided for transmission, information for data sequence control must be added so that the full Ethernet frame can be reconstructed after transmission (column 9, lines 13-19).

It would have been obvious to one of ordinary skill in the art at the time of invention to further modify the combination of Skemer and Downes to include identifiers indicating whether the data packets contained an entire Ethernet frame, a first portion of an Ethernet frame, or a last portion of an Ethernet frame, so the Ethernet frames could be properly reconstructed after transmission over the WAN.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hornig (*RFC 894*) discloses how IP packets are transmitted over Ethernet networks.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian L. Albertalli whose telephone number is (571) 272-7616. The examiner can normally be reached on Mon - Fri, 8:00 AM - 5:30 PM, every second Fri off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on (571) 272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BLA 9/7/05

W. R. YOUNG
PRIMARY EXAMINER